California Department of Public Health

MEMORANDUM

DATE: January 23, 2014

TO: Remedios Sunga
Project Manager
Brownfields and Environmental Restoration Program - Berkeley Office - Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710-2721

FROM: Sheetal Singh, PhD
Senior Health Physicist
Environmental Management Branch
1616 Capitol Avenue, MS-7405
P. O. Box 997377
Sacramento, California 95899-7377

SUBJECT: Review comments for *Draft Radiological Scoping Survey Report Installation Restoration Site 12 and Selected Transportation Routes,* Former Naval Station Treasure Island San Francisco, California. Issued December 16, 2014.

Upon the request of the Department of Toxic Substance Control (DTSC), the Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) has reviewed the *Draft Radiological Scoping Survey Report Installation Restoration Site 12 and Selected Transportation Routes,* Former Naval Station Treasure Island San Francisco, California. This review was performed in support of the Interagency Agreement between DTSC and CDPH.

If you need further assistance about this response please contact Matthew Wright of my staff at (916) 449-5687.

Activity: Review comments for *Draft Radiological Scoping Survey Report Installation Restoration Site 12 and Selected Transportation Routes,* Former Naval Station Treasure Island, San Francisco, California. Issued December 16, 2014.

The Environmental Management Branch (EMB) of the California Department of Public Health (CDPH) appreciates the opportunity to review the submitted document, *Draft Radiological Scoping Survey Installation Restoration Site 12 and Selected Transportation Routes,* Former Naval Station Treasure Island, San Francisco, California.

General Comments:

1. The California Department of Public Health - Environmental Management Branch (CDPH-EMB) utilizes the California Code of Regulations (CCR), Title 17, Section 30256(k), which requires that radioactive material be removed, a reasonable effort has been made to eliminate residual radioactive contamination and the licensee can demonstrate the site is suitable for unrestricted release. In practice this means utilizing the decision making process outlined in the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), which includes establishing a reference background area for each of the materials to remain in situ. These background measurements are then compared to survey units using the MARSSIM statistical approach.

2. While Cs-137 is a radionuclide of concern for portions of Site 12, a radiological screening criterion for Cs-137 in soil has not been developed. CDPH-EMB appreciates the utility of a radiological screening criterion for Cs-137 in soil to identify residual radioactivity requiring remediation and to develop characterization or final status surveys. However; in order to compare a Final Status Survey (FSS) to a reference background area; a reference background dataset for Cs-137 must be established.

Specific Comments:

3. Definitions, page vii, Low-Level Radiological Object (LLRO), "For the purposes of this report, the term 'low-level radiological object' (also referred to as 'radioactive commodity' in project documentation)". CDPH-EMB appreciates the clarification in the linkage of the two terms.

4. Section 1.2 Objective and Scope, page three, paragraph one, sentence four, "Data analysis included the calculation and comparison of statistical quantities; visual inspection of data distributions using cumulative frequency diagrams and frequency plots to identify data distribution trends and potential outliers; and spatial assessment using z-score mapping to identify radiological statistical outliers". CDPH-EMB appreciates the application of these analytical tools.

Instrument/ Serial Number 2360/227431 with Probe Type 43-37 / PR278381. Following review of Scaler Initial Setup Sheet for Ludlum Model 2360 Scaler/Ratemeter Data Logger paired with 43-37 probes; the following errors were identified.

a. First page: It is noted that the Scan MDC and Static MDC values found under the heading of, "Equations", on the second page, are recorded as, "MDA= Scans" and, "MDA Static =", on the first page. Please correct as needed.

b. Page two, under the heading of, "Equations", the equation for Static MDC has the following undefined terms; "R_b ,t_s ,t_b ,E and A". Please add this information.

c. Page two, under the heading of, "Equations", the definition d'=1.38 (source: MARSSIM Table 6.5, pg.6-40; assumes correct decision rate of 95%)" is incorrect in its application. MARSSIM Table 6.5, Values for d' for Selected True Positive and False Positive Proportions; shows a True Positive Proportion of 0.95 and a False Positive Proportion of 0.60 for the value d'=1.38.

This violates Section 1.5.6, Step 6-Limits on Decision Errors, page nine, paragraph one, sentence three, which states, "Decision error rates associated with the calculation of instrument minimum detectable concentrations (MDCs) were set at 0.05 (5%)." Additionally, the Final Radiological Management Plan Former Naval Station Treasure Island San Francisco, California, Section 5.6, Step 6-Limits on Decision Errors, page 23, paragraph four, sentence two, also states, "Decision error rates associated with the calculation of instrument minimum detectable concentrations (MDCs) and the number of fixed point measurements will also be set at 0.05 (5%)."

CDPH-EMB cannot agree with the MDCR, Scan MDC or Static MDC values for this instrument. Please recalculate these values or this instrument and any other instrument with similar errors.

5. Section 1.5.3, Step 3 – Inputs to the Decision, page eight, paragraph two, for paved roadways, "Samples of soil and bulk material analyzed by gamma spectroscopy, and samples of removable surface radioactivity (smears) analyzed for gross alpha/beta radioactivity, also were used as qualitative inputs." For land areas, "Soil samples analyzed by gamma spectroscopy were used as quantitative inputs." Please explain why soil samples for paved roadways were considered qualitative inputs; while soil samples for land areas were considered quantitative inputs.

6. Section 4.4 Z-Score Mapping, page 39, paragraph two, sentence one, "The mean and standard deviation of each matrix data set for each housing area were calculated, z-scores were computed, and color-coded maps were created. Three color divisions were used to represent various ranges of z-score values". CDPH-EMB appreciates the use of the standardized z-score mapping.

7. Section 6.1.1 Reference Areas, page 47, paragraph one, sentence one, "The existing reference areas for the former NSTI lack valuable characteristics that limit their utility in assessing gross gamma scan and soil sample data collected as part of the radiological scoping survey". CDPH-EMB concurs with this conclusion. CDPH-EMB notes that unlike the gross gamma scan; there is no specific recommendation as to how to develop a more useful soil sample data for reference area. Please add that information.

   If the Department of Navy (DON) wishes to employ NUREG 1505, A Non-parametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys (NRC1998a), Scenario B; please ensure there is sufficient variability in the soil data of the background areas to justify the use of Scenario B.

8. Section 6.1.1 Reference Areas, page 47, paragraph one, bullet one, "Develop and qualify reference areas of suitable size and material composition (i.e., soil, concrete, and asphalt) for use with gross gamma scan data collected from the Site 12 housing areas." CDPH-EMB concurs with this specific recommendation. Additionally, please include a calculation and comparison of statistical quantities; visual inspection of data distributions using cumulative frequency diagrams and frequency plots to identify data distribution trends and potential outliers for these reference areas.

9. Appendix B, Survey Instrumentation Data. CDPD-EMB appreciates the inclusion of the Quality Assurance (QA) and Quality Control (QC) records, Certificates of Calibrations for the radiological instruments and sources, along with the chi-squared calculations when appropriate; for the radiological instruments used in this document. CDPH-EMB randomly selected the Scaler Initial Set up sheet for

Clark, David J CIV NAVFAC SW

om: Edwards, Zachary L CIV SEA 04 04N
ent: Wednesday, November 19, 2014 6:36
To: 'Chiu, George'
Cc: Janda, Danielle L CIV NAVFAC SW; Cardinale, Louie CIV NAVFAC SW, PACO; Konzen, Anthony CTR NAVFACHQ, BRAC PMO; Yantos, Christopher N CTR NAVFACHQ, BRAC PMO; Clark, David J CIV NAVFAC SW; Forman, Keith S CIV NAVFACHQ, BRAC PMO; Shanti.Montgomery@tetratech.com
Subject: RE: NSTI Data - IR Site 6 Survey Unit 12 (CTO-25)
Signed By: zachary.edwards@navy.mil

George,

It is true that we have not yet listed Cs-137 as an ROC and have not established a DCGL/release criteria specifically for this isotope. We are however closely monitoring any positive results above the MDA for Cs-137. With a few exceptions, we have not seen any activity at TI that is on the order of the activity we have detected at locations such as HPS, Alameda, or Mare Island that we attribute to fallout from weapons testing. The data provided for SU's 1,2,3, & 12 are a good example of the typical results we see for Cs-137 (it looked like only 2 other samples had any activity that can even be considered to be legitimately above MDA ranging up to 0.07 pCi/g). We are very sensitive to any positive Cs-137 activity results and would appreciate more detail where possible for any samples exceeding 0.1 pCi/g. Information that would be valuable to us would include a description of the lay of the land (Is it a collection point?, Does it represent a large area of drainage?), how much additional sediment is remaining?, a description of the sample and depth (was it surface only, 6", would a surface only sample likely yield a higher result?) and any other outstanding characteristics about the particular sample location that may provide insight into the reason the sample is outside of our normal expected range. Your diligence and cooperation will help us to better understand the Cs-137 background values at TI and their varied distribution.

Thank you,
Zach

-----Original Message-----
From: Chiu, George [mailto:george.chiu@tetratech.com]
Sent: Tuesday, November 18, 2014 9:25 PM
To: Edwards, Zachary L CIV SEA 04 04N
Cc: Montgomery, Shanti; Smith, Nathan
Subject: RE: NSTI Data - IR Site 6 Survey Unit 12 (CTO-25)

Zach,

FYI - sample 01 identified Cs-137 activity at 0.1164 pCi/g. Since Cs-137 is not listed as a ROC, remediation will not be performed at this location. Please let us know if you have any concerns.

Regards,

George

George Chiu | Health Physicist

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Tetra Tech EC, Inc. | Hunters Point Shipyard

200 Fisher Avenue | San Francisco, CA 94124 | www.tetratech.com <http://www.tetratech.com/>

From: Chiu, George
Sent: Tuesday, November 18, 2014 6:21 PM
To: Allen Stambaugh (allen.stambaugh@navy.mil); Matt Slack (matthew.slack@navy.mil); Patrick Owens (patrick.a.owens@navy.mil); Zachary Edwards (zachary.edwards@navy.mil)
Cc: Jensen, Jarvis; Kanaya, Rich; Miller, Thorpe; Montgomery, Shanti; McWade, Dennis; Smith, Nathan
Subject: NSTI Data - IR Site 6 Survey Unit 12 (CTO-25)

Allen/Matt/Pat/Zach:

Attached for your review are the screening systematic sampling results from IR Site 6 Survey Unit 12. Samples 01 and 07 were recounted for a longer duration.

One hundred percent of the final systematic will be analyzed by gamma spectroscopy using the definitive method at a DoD ELAP approved laboratory.

George Chiu | Health Physicist

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